DEFENSE INFORMATION INFRASTRUCTURE (DII)

COMMON OPERATING ENVIRONMENT (COE)

DISTRIBUTED COMPUTING ENVIRONMENT CLIENT (DCEC)
Segment v1.0.0.1
Installation Instructions for HP-UX 10.20

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Purpose

These instructions describe how to install and configure the Distributed Computing Environment Client (DCEC) segment on a HP-UX machine.

References

- HP DCE/9000 Version 1.5 for HP-UX 10.20 Release Notes
- Planning and Configuring HP DCE
- HP DCE Command Reference
- OSF DCE Administration Guide: Core Components
- DII COE DCE Cell Administration Guide

Tested Platform and Environment

Logicon developed and tested the DCEC segment in the following hardware and software environment.

- HP/9000 715 Workstation "scotty"
- HP-UX Operating System version 10.20
- DII COE Kernel version 3.0.1.0 HP-UX 10.20, material date 04/14/97
- DII COE Developers Toolkit version 3.0.0.5 HP-UX 10.20, material date 04/14/97
- HP DCE 1.5 for HP-UX 10.20

Furthermore, the HP DCEC segment was configured using one other machine with the following hardware, software, and DCE cell structure.

- Sun SPARCstation 20 "spock"
- Solaris 2.5.1 Operating System
- DII COE Kernel version 3.0.0.3 for Solaris 2.5.1, material date 10/15/96
- DII DCE Server (DCES) segment version 1.0.0.5 for Solaris 2.5.1, material date 12/09/96
- "spock" was configured as a Cell Directory Server (CDS), Security Server, and local Distributed Time Server (DTS).

Machine Requirements

- Total memory required to run HP DCE 1.5 is a minimum 32 Mb of memory for DCE client-only machines; 64 Mb for DCE server machines.
- A minimum of 50 Mb of swap space is recommended for DCE client-only HP DCE 1.5 systems; at least 100 Mb is recommended for systems running one or more DCE servers.

Configuring the DCEC Segment

To configure a client system, you need to know the name of the system(s) running the Security server and the initial CDS server for the cell.

If you are using DTS as your time synchronization mechanism, you must configure a CTS clerk (client) on any system that is not running a DTS server.

You must have the following information to configure a client:

- The host name of any security server in the cell
- The cell administrator's principal name and password
- The host name of a CDS server in the cell

1 Select <Network> | <Configure DCE Client from the Sysadmin Pull-Down Menu. This launchs the **dce_config** script which is used to configure DCE machines. The **dce_config** script can also be started at the command line by typing /etc/dce_config.

2 Enter the **root** password.

3 **dce_config** asks if you want to remove all remnants of previous DCE configurations. If you are configuring this system for the first time or have previously run Remove, answer **n**. Otherwise, answer **y**.

4 Enter the host name of your cell's security server:

```
What is the name of a Security Server running in the cell you wish
to join? sec_server_node

S: * * * * * * Starting dced...
S: * * * * * * Initializing dced...
```

5 After starting and initializing the Security client daemon, **dce_config** asks for the name of a node with which it can synchronize the clock on this node: Enter **<RETURN>** to get the default (the master security machine in the cell).

```
DCE requires close synchronization of clocks.  During normal
cell operation, DTS takes care of this.  However during
configuration, you need to synchronize clocks with a
node that is already part of the cell.  Usually this is
the node running the master security server.
Enter a machine to synchronize with: (spock)
```

THIS NEXT ERROR IS EXPECTED

```
Error: Could not get current time using dced services.
```

S:****** Time on scotty is within specified tolerance (120 secs) of time on spock.

Enter Cell Administrator's principal name: (cell_admin)
Enter password:

S: * * * * * * Checking for active sec_client service...
S: * * * * * * Starting sec_client service...
S: * * * * * * This node is now a security client.
S: * * * * * * Starting cdsadv...

6 Enter the name of the cell CDS server. If the cell has more than one CDS server, choose one:

What is the name of a CDS server in this cell (if there is more than one, enter the name of the server to be cached if necessary)? **cds_server_host**

Create LAN profile so clients and servers can be divided into profile groups for higher performance in a multi-lan cell? (n) **n**

S: * * * * * * This node is now a CDS client.

7 After configuring the CDS client, **dce_config** asks how the node should be configured for DTS. If you are using DTS as your time synchronization mechanism, you must configure a DTS clerk (client) on any system that is not running a DTS server.

Should this machine be configured as a DTS Clerk, DTS Local Server, or DTS Global Server? (default is DTS Clerk) (clerk, local, global, none) **<RETURN>**

S: * * * * * * Starting dtsd...
S: * * * * * * This node is now a DTS clerk

Configuration of the DCE client system is now complete.

De-Installation of DCEC for HP-UX 10.20

The DCEC segment cannot be de-installed. This is because the DCE client software is already part of the HP-UX 10.20 operating system. The DCEC segment merely contains encryption libraries.

Useful Commands to Validate HP DCE Configuration

The dce_login command

The **dce_login** command validates a principal's identity and obtains the principal's network credentials.

```
# dce_login cell_admin
Enter Password:
```

The dcecp dts show Command

The following command was executed on a DTS client machine. It provides valuable information, such as when the last time the client synchronized, `last time polled`, with a DTS server.

```
# dcecp -c dts show
{tolerance +0-00:05:00.000I-----}
{tdf -0-05:00:00.000I-----}
{maxinaccuracy +0-00:00:00.100I-----}
{minservers 1}
{queryattempts 3}
{localtimeout +0-00:00:05.000I-----}
{globaltimeout +0-00:00:15.000I-----}
{syncinterval +0-00:10:00.000I-----}
{type clerk}
{clockadjrate 40000000 nsec/sec}
{maxdriftrate 1000000 nsec/sec}
{clockresolution 10000000 nsec}
{version V1.0.1}
{timerep V1.0.0}
{autotdfchange no}
{nexttdfchange 1997-04-06-03:00:00.000-04:00I0.000}
{status enabled}
{localservers
 {name /.../gccs.smil.mil/hosts/spock/self}
 {timelastpolled 1997-01-15-10:20:10.402-05:00I-----}
 {lastobstime 1997-01-15-10:20:10.311-05:00I-----}
 {lastobsskew +0-00:00:00.091I-----}
 {inlastsync TRUE}
 {transport RPC}}
```

The dcecp cell ping Command

The **cell ping** command performs a quick check to test if the cell is running. If no options are given the command pings the master security server, any CDS servers that house a master directory replica and all DTS servers.

```
# dcecp -c cell ping
DCE services available
```

The **-replicas** option will cause the command to ping each security and CDS server, both master and replica, as well as all DTS servers.

```
# dcecp -c cell ping -replicas
DCE servers available
```

The **-clients** option will cause the command to ping every machine in the cell.

```
# dcecp -c cell ping -clients
DCE clients available
```

The dcecp cell show Command

The **cell show** command returns attributes describing the configuration of the specified cell. In the following example, we have two machines in the cell. *Spock* is the master security server, a CDS server and DTS server. *Scotty* is a DCE client-only machine.

```
# dcecp -c cell show
{secservers
/.../gccs.smil.mil/subsys/dce/sec/master}
{cdsservers
/.../gccs.smil.mil/hosts/spock}
{dtsservers
 /.../gccs.smil.mil/hosts/spock}
{hosts
 /.../gccs.smil.mil/hosts/spock
 /.../gccs.smil.mil/hosts/scotty}
```